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Interactive comment on "Black carbon concentrations from a Tibetan Plateau ice core spanning 1843–1982: recent increases due to emissions and glacier melt" *by* M. Jenkins et al.

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We thank referee #3 for their thorough review. Here we want to provide clarification on one point that the reviewer made.

Referee #3 under 'other major point' #2 had questions regarding albedo reductions of BC and dust. In the manuscript we stated, "Albedo reductions from BC will be less in the presence of other light absorbing impurities because the other impurities capture some of the solar radiation that the BC would receive in the absence of other impurities (Kaspari et al., 2011)." Referee #3 ran simulations on SNICAR online and reports that albedo reductions due to BC and dust are higher under greater dust loading (we

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agree), and questioned the results of Table 1 in Kaspari et al., 2011. Flanner ran the simulations for Kaspari et al., 2011. We suspect that the referee did not see that in Table 1 of Kaspari et al. 2011 the radiative forcing presented is due to BC in snow in the presence of dust, unless specifically noted as no BC, in which case the radiative forcing is due to dust in snow. So to be clear, the radiative forcing numbers reported are due to just BC, not dust+BC combined. We agree that albedo reductions are greater when dust is also present (with higher dust loads resulting in lower albedo). The point that was made in Kaspari et al. 2011 and that we refer to in this manuscript is that if there is X concentration of BC in a snowpack with no dust, the albedo reduction DUE TO BC will be greater than X concentration of BC in a snowpack with dust because the dust captures some of the solar radiation that the BC would receive.

Interactive comment on The Cryosphere Discuss., 7, 4855, 2013.